User's Manual

PBM8.250 MK II

PBM8.500 MK II

8-channel
Stereo Powered Mixer with DSP

ALTO®

www.altoproaudio.com
Version 1.0 August 2005
— English —

SAFETY RELATED SYMBOLS

This symbol, wherever used, alerts you to the presence of un-insulated and dangerous voltages within the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.

This symbol, wherever used, alerts you to important operating and maintenance instructions. Please read.

⏚ Protective Ground Terminal

~ AC mains (Alternating Current)

Hazardous Live Terminal

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

WARNING

Describes precautions that should be observed to prevent the possibility of death or injury to the user.

CAUTION

Describes precautions that should be observed to prevent damage to the product.

Disposing of this product should not be placed in municipal waste and should be Separate collection.

WARNING

- **Power Supply**

  Ensure that the mains source voltage (AC outlet) matches the voltage rating of the product. Failure to do so could result in damage to the product and possibly the user.

  Unplug the product before electrical storms occur and when unused for long periods of time to reduce the risk of electric shock or fire.

- **External Connection**

  Always use proper ready-made insulated mains cabling (power cord). Failure to do so could result in shock/death or fire. If in doubt, seek advice from a registered electrician.

- **Do Not Remove Any Covers**

  Within the product are areas where high voltages may present. To reduce the risk of electric shock do not remove any covers unless the AC mains power cord is removed.

  Covers should be removed by qualified service personnel only.
  No user serviceable parts inside.

- **Fuse**

  To prevent fire and damage to the product, use only the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder. Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

- **Protective Ground**

  Before turning the product ON, make sure that it is connected to Ground. This is to prevent the risk of electric shock.

  Never cut internal or external Ground wires. Likewise, never remove Ground wiring from the Protective Ground Terminal.

- **Operating Conditions**

  Always install in accordance with the manufacturer's instructions.

  To avoid the risk of electric shock and damage, do not subject this product to any liquid/rain or moisture. Do not use this product when in close proximity to water.

  Do not install this product near any direct heat source.

  Do not block areas of ventilation. Failure to do so could result in fire.

  Keep product away from naked flames.

IMPORTANT SAFETY INSTRUCTIONS

Read these instructions

Follow all instructions

Keep these instructions. Do not discard.

Heed all warnings.

Only use attachments/accessories specified by the manufacturer.

- **Power Cord and Plug**

  Do not tamper with the power cord or plug. These are designed for your safety.

  Do not remove Ground connections!

  If the plug does not fit your AC outlet seek advice from a qualified electrician.

  Protect the power cord and plug from any physical stress to avoid risk of electric shock.

  Do not place heavy objects on the power cord. This could cause electric shock or fire.

- **Cleaning**

  When required, either blow off dust from the product or use a dry cloth.

  Do not use any solvents such as Benzol or Alcohol. For safety, keep product clean and free from dust.

- **Servicing**

  Refer all servicing to qualified service personnel only.

  Do not perform any servicing other than those instructions contained within the User's Manual.

PREFACE

Dear customer

Thank you for choosing the ▲LTO PBM8.250 MK II/500 MK II 8-channel stereo powered mixer with DSP, which is the result of our ▲LTO AUDIO TEAM's endeavours.

For the ▲LTO AUDIO TEAM, music and audio are more than a profession, it is a passion and an obsession!

We have, in fact, been designing professional audio products for a number of years in cooperation with many of the world's major brands.
The ▲LTO line represents unparalleled analogue and digital products made by musician, for musicians. With our design centres in Italy, the Netherlands, and United Kingdom we provide you with world-class designs, while our software development teams continue to develop an impressive range of audio specific algorithms.

By purchasing our ▲LTO products you become the most important member of our ▲LTO AUDIO TEAM. We would like to share with you our passion for what we design and invite you to make suggestions, which will aid us in developing future products for you. We guarantee you our commitment for quality, continual research and development, and of course the best prices.

The ▲LTO PBM8.250 MK II/500 MK II is extremely flexible, ultra-low noise 8-channel stereo powered mixer with DSP, which is configured with six MIC/line and two stereo inputs channels, each of them is equipped with a variety of key features including a 3-band equalizer, two aux sends and pan control etc.. Besides, the miraculous DSP with 256 presets and powerful digital power amplifier will meet your requirements. To deserve to be mentioned, the only difference between ▲LTO PBM8.250 MK II and ▲LTO PBM8.500 MK II is the output power. PBM8.250 MK II is 2×250W; PBM8.500 MK II is 2×500W. seeing is believing, let's meet the ▲LTO PBM8.250 MK II/500 MK II.

We would like to thank all the people who made the ▲LTO PBM8.250 MK II/500 MK II possible, especially to our designers and ▲LTO staff. It is their passion for music and professional audio that has made it possible for us to offer you, our most important team member, our continued support.

Thank you very much
▲LTO AUDIO TEAM

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1. INTRODUCTION

Thank you very much for expressing your confidence in ▲LTO products by purchasing ▲LTO PBM8.250 MK II/500 MK II 8-channel stereo powered mixer with DSP. The PBM8.250 MK II/500 MK II is professional, powerful mixer, which provides the state of the art digital amplifier technology specifically. You will get the smooth, accurate more natural and open sound from this apparatus, it is really ideal for large gigs, recording and fixed PA installations.

The PBM8.250 MK II/500 MK II 8-channel stereo powered mixer with DSP is packed with some key features. For example: there is six MIC/line inputs which provided with ultra low noise microphone pre-amplifiers and phantom power at +48V plus two stereo inputs, each of them features a 3-band equalizer, two aux sends, pan and level control. The master section includes stereo return, 2-track input/output for playing back stereo devices for recording your mix, sweet equ-alizers for main and monitor, 256 position multieffect and built-in feedback terminator and so on.

Though your PBM8.250 MK II/500 MK II is very easy to operate, we strongly recommend you to go through each section of this manual carefully, in this way you will get the best out of your PBM8.250 MK II/500 MK II.

2. FEATURES

The PBM8.250 MK II/500 MK II 8-channel stereo powered mixer with DSP is designed for professional application. It provides the following features:

- Digital amplifier technology, offering high power and a very dynamic sound
- 9-band graphic EQ for MAIN / MONITOR
- Built-in feedback terminator
- 6 MIC/line input channels with gold plated XLRs and balanced LINE inputs
- 2 Stereo input channels with balanced TRS jacks
- Ultra-low noise discrete MIC preamps with +48V phantom power
- Extremely high headroom offering more dynamic range
- 3-band equlizer on input channels
- Each input channel with -20dB PAD, PAN and level control
- 2 AUX sends for built-in or external effects, on-stage monitor mix, or headphone mixing
- 256 position multieffect
- 2-track recording IN/OUT (phono)
- Headphone output
- 2×250 watt rms amplifiers (For PBM8.250 MK II)
- 2×500 watt rms amplifiers (For PBM8.500 MK II)
- Output connector: 6.3 ϕ jack + 4 way-speakon

3. QUICK START

3.1 Please check the AC Voltage available in your country before connecting your PBM8.250 MK II/500 MK II to the AC socket.

3.2 Be sure that the main power switch is turned off before connecting the Mixer to the AC socket. Also, you should make sure that all Input and output controls are turned down. This will avoid damages to your speakers and avoid excessive noise.

3.3 Please connect one side of the speaker cable to speakon or phone jacks of your PBM8.250 MK II/500 MK II and the other side to the input socket of your speaker cabinet; or connect one side to the main output L/R of your PBM8.250 MK II/500 and other side to the input socket of your active speaker cabinet or other stereo power amplifier.

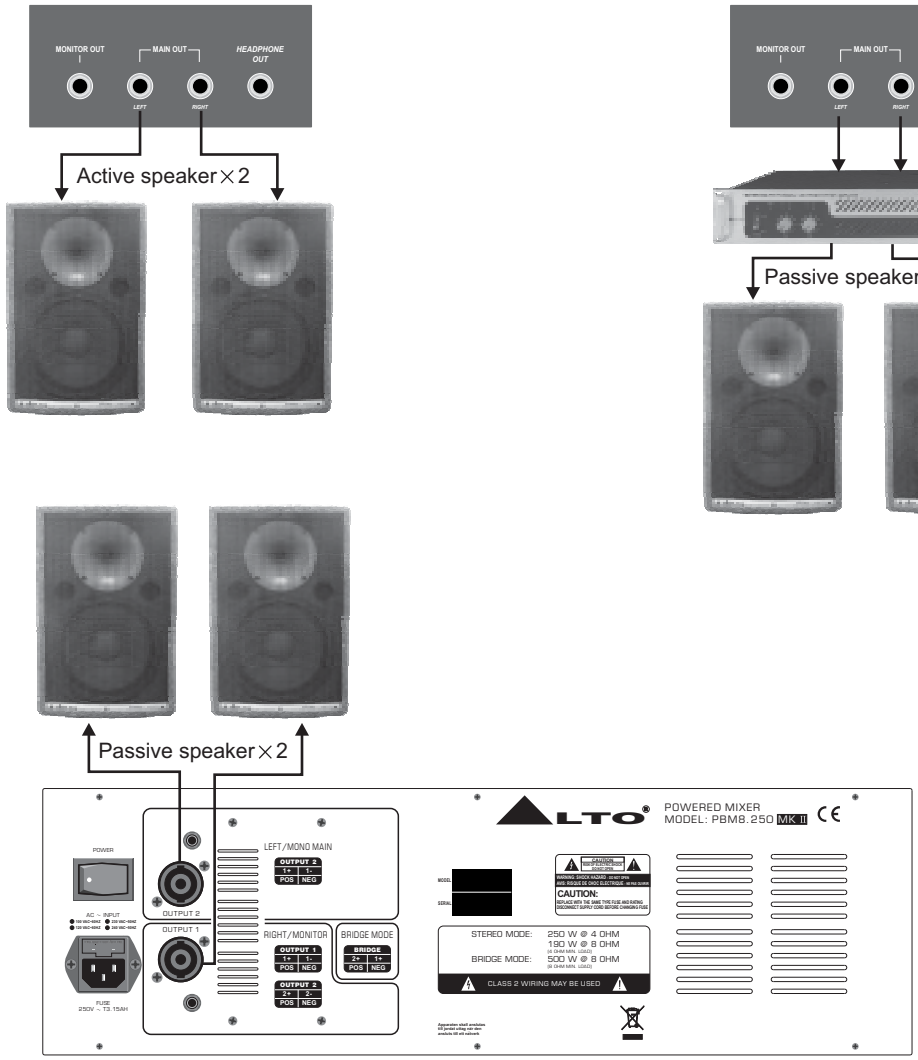
3.4 Complete these connections as illustrated.

3.5 When no external power amplifier or active speaker connected to the main output L/R of your PBM8.250 MK II/ 500 MK II, please switch on your PBM8.250 MK II/500 MK II after turning on all external devices; after using, switch off your PBM8.250 MK II/500 MK II before all external devices.

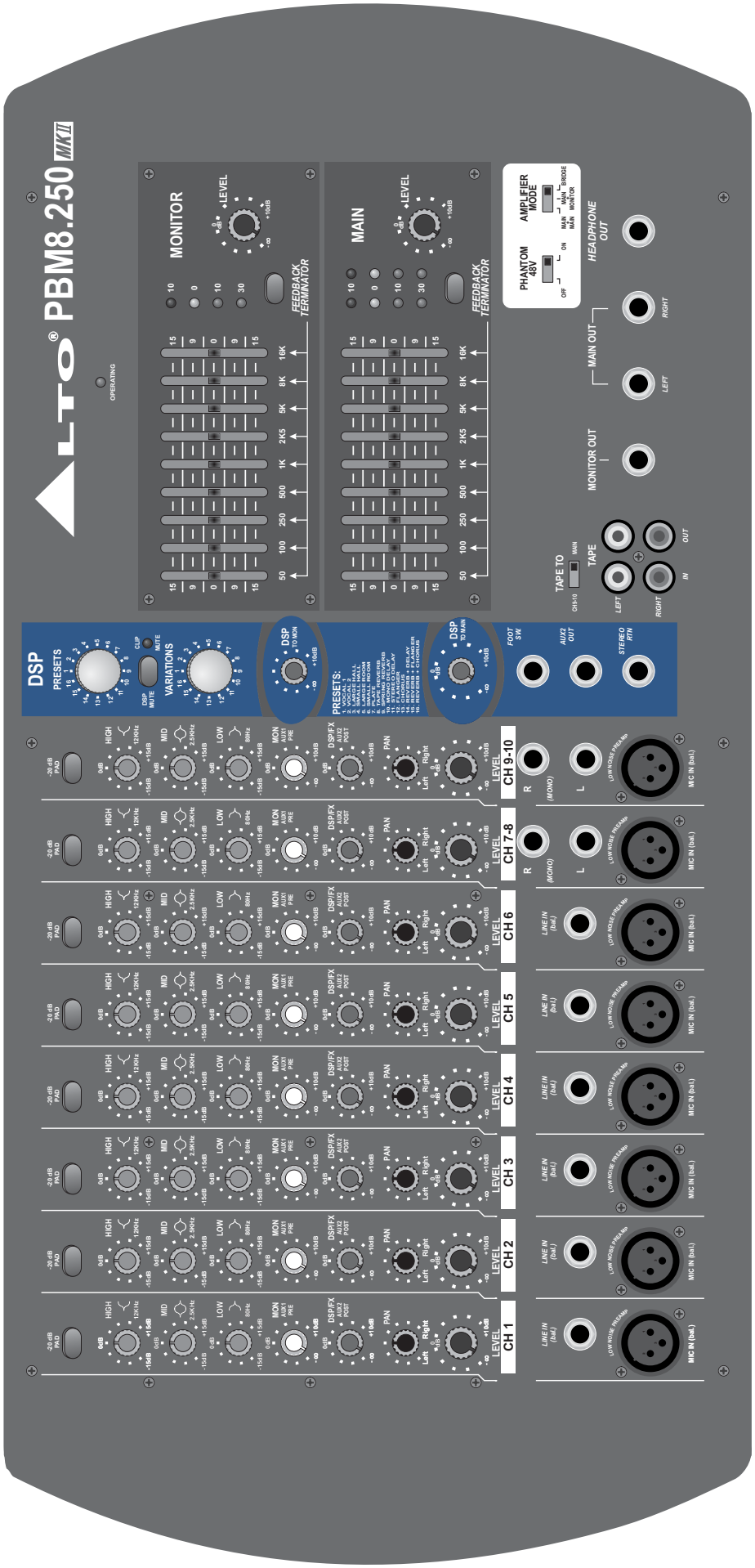
3.6 When the external power amplifier or active speaker connected to the main output L/R of your PBM8.250 MK II /500 MK II, please switch on your PBM8.250 MK II/500 MK II before the external power amplifier or active speaker. After using, switch off your PBM8.250 MK II/500 MK II after the external power amplifier or active speaker.

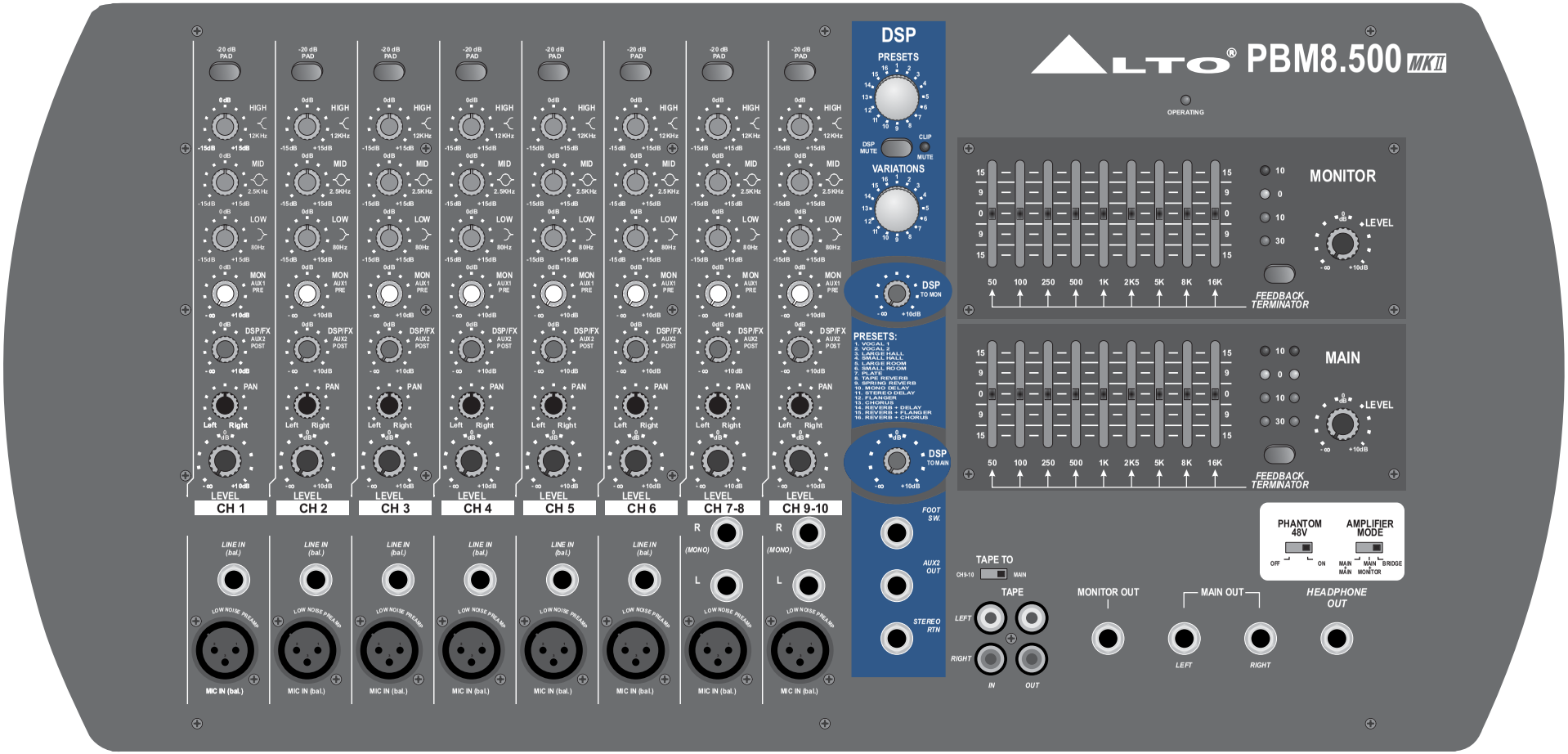
3.7 Before disconnecting the PBM8.250 MK II/500 MK II always turn-off the Power switch.

3.8 Do not use solvents to clean your PBM8.250 MK II/500 MK II. A dry and clean cloth will be OK.



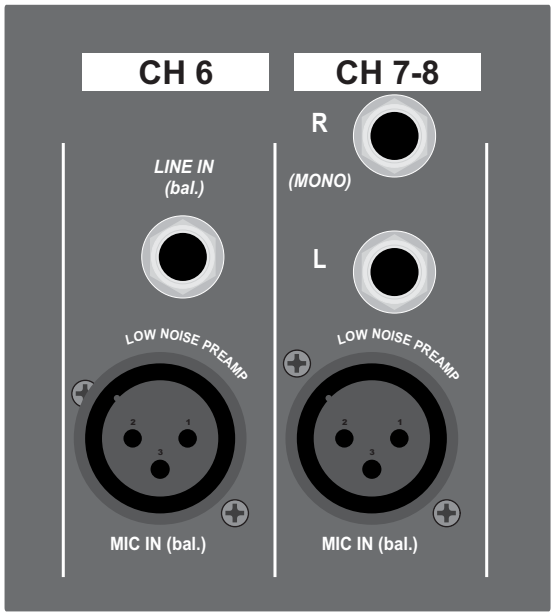
4. CONTROL ELEMENTS




LTO® PBM8.500 MK II
OPERATING
DSP
PRESETS
DSP MUTE
CLIP
MUTE
VARIATIONS
DSP TO MON
DSP TO MAIN
PRESETS:
1. VOCAL 1
2. VOCAL 2
3. SMALL HALL
4. LARGE HALL
5. LARGE ROOM
6. SMALL ROOM
7. PLATE
8. TAPE REVERB
9. SPRING REVERB
10. REVERB + DELAY
11. STEREO DELAY
12. FLANGER
13. CHORUS
14. REVERB + DELAY
15. REVERB + FLANGER
16. REVERB + CHORUS
FOOT SW.
AUX2 OUT
STEREO RTN
-20 dB PAD
HIGH
MID
LOW
MON
AUX1 PRE
DSP/FX
AUX2 POST
PAN
Left Right
LEVEL
CH 1
CH 2
CH 3
CH 4
CH 5
CH 6
CH 7-8
CH 9-10
LINE IN (bal.)
LOW NOISE PREAMP
MIC IN (bal.)
R
(MONO)
L
MONITOR
MAIN
FEEDBACK TERMINATOR
50 100 250 500 1K 2K5 5K 8K 16K
PHANTOM 48V
OFF ON
AMPLIFIER MODE
MAIN MAIN
MAIN MONITOR
BRIDGE
TAPE TO
CH9-10 MAIN
TAPE
LEFT
RIGHT
IN OUT
MONITOR OUT
MAIN OUT
LEFT RIGHT
HEADPHONE OUT

4.1 MONO/STEREO Input Channel Section

Your PBM8.250 MK II/500 MK II comprises 6 mono input channels and 2 stereo input channels, each of them including -20dB PAD, 3-band equalizer, AUX sends, PAN and LEVEL con-trols. The following content will detail the each part.



1 MONO Input Channels (1 ~ 6)

There are CH1 through CH6, which comes with MIC IN and LINE IN connector. Use the XLR MIC IN connector to connect low noise microphones preamp and low level signal, which also feature +48V phantom power, allowing you to connect condenser microphones. Use the 1/4" TRS LINE IN connector to connect either a microphone or a line level instrument such as synthesizers, drum machines, effects processors...

Note: You shall never connect an unbalanced microphone to the XLR connector if you do not want to damage both the microphone and the mixer.

2 STEREO Input Channels (7 ~ 10)

There are CH7 through CH10. They are organised in stereo pair. Via the 1/4" TRS input connectors, you can connect the outputs from stereo devices such as synthesizers, effects processor or any stereo line level signal. If only the right jack was connected, the input will operate in mono mode.
Via the XLR MIC IN connector, you can input the low level signal.

3 -20dB PAD Button

Pressing this button will attenuate the input signal by 20dB. In such way you can produce increased headroom and reduce the risk of distortion because of level peaks at input level when the input signal is quite hot.

4 EQUALIZER

Your PBM8.250 MK II/500 MK II features a 3-band equalizer allowing you adjust the high, mid and low frequencies separately on each channel. All bands provide up to 15dB of boost or cut, flat at the center detent.

HIGH
This is the treble control. You can use it to get rid of high frequency noises or to boost the sound of cymbals or the high harmonics of the human voice.

MID
This is the midrange control. It can affect most fundamental frequencies of all musical instruments and human voice. An attentive use of this control will give you a very wide panorama of sound effects.

LOW
This is the bass control. It is used to Boost male voice or kickdrum and bass guitar. Your system will sound much bigger than what it is.

5 MON (AUX1) Control

Your PBM8.250 MK II/500 MK II has two auxiliary sends which can be used for sending signals to external or internal effects device or for creating a monitor mix, they are used to adjust the level of respective channel signal sent to AUX bus, and the adjustable range goes from -∞ to +10dB.

The AUX1 control is configured as PRE-FADER, which means that the signal is sent out before reaching the channel fader. It is used for a monitor mix in a live sound mixing, or for a headphone mix in recording application.

6 DSP/FX (AUX2) Control

The AUX2 control is configured as POST-FADER, so the audio signal will be affected by channel fader. Via the AUX2 OUT jack, the AUX2 signal can be sent to an external effects device, furthermore, the AUX2 signal can also be assigned to internal onboard effect module.

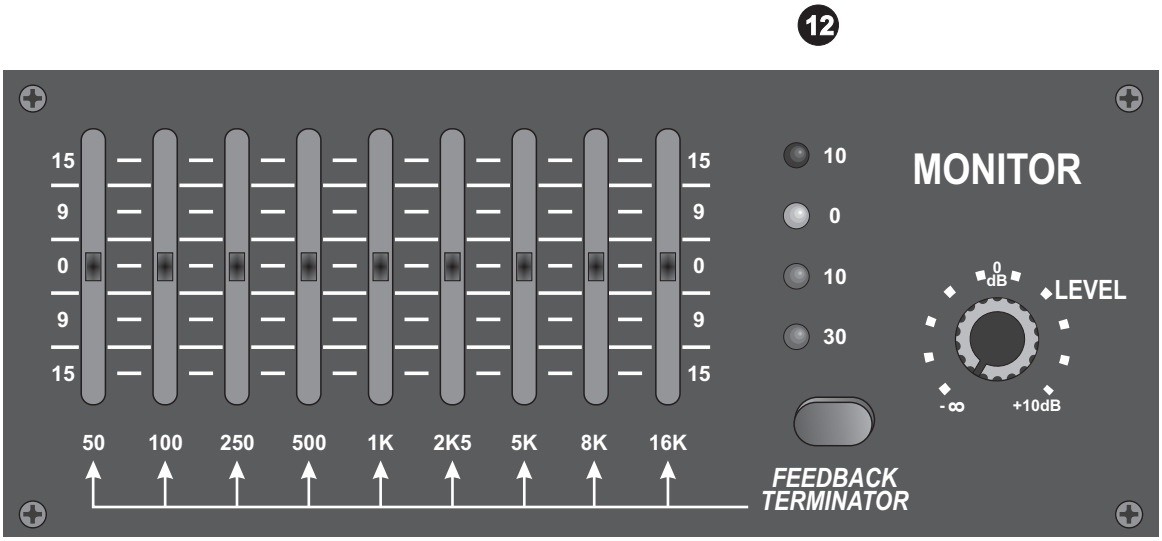
7 PAN Control

Abbreviation of PANORAMA control for mono and stereo channels. It is used to determine the amount of channel signal sent to left and right of main mix. Keep this control in center position, then the signal will be positioned in middle of stage. Turn this control fully counterclockwise, the signal will be present only on the left of main mix and vice-versa.

8 Channel LEVEL Control

This control is used to adjust the overall level of respective channel. The adjustable range goes from -∞ to +10dB.

4.2 MASTER SECTION Controls



9 STEREO GRAPHIC EQ

Your PBM8.250 MK II/500 MK II is equipped with both stereo graphic EQs, one is for MAIN MIX; another for MONITOR MIX, each of them provides 9-band fa der controls. Via these faders, you can boost or attenuate the selected frequency by 15dB at a preset bandwidth. When all faders are at the centre position, the output of the equalizer is flat res-ponse. They are used to modify the frequency "contour" of a sound. The EQ function will be activated automatically as soon as you operate your PBM8.250 MK II/500 MK II.

10 FEEDBACK TERMINATOR Button (MONITOR MIX)

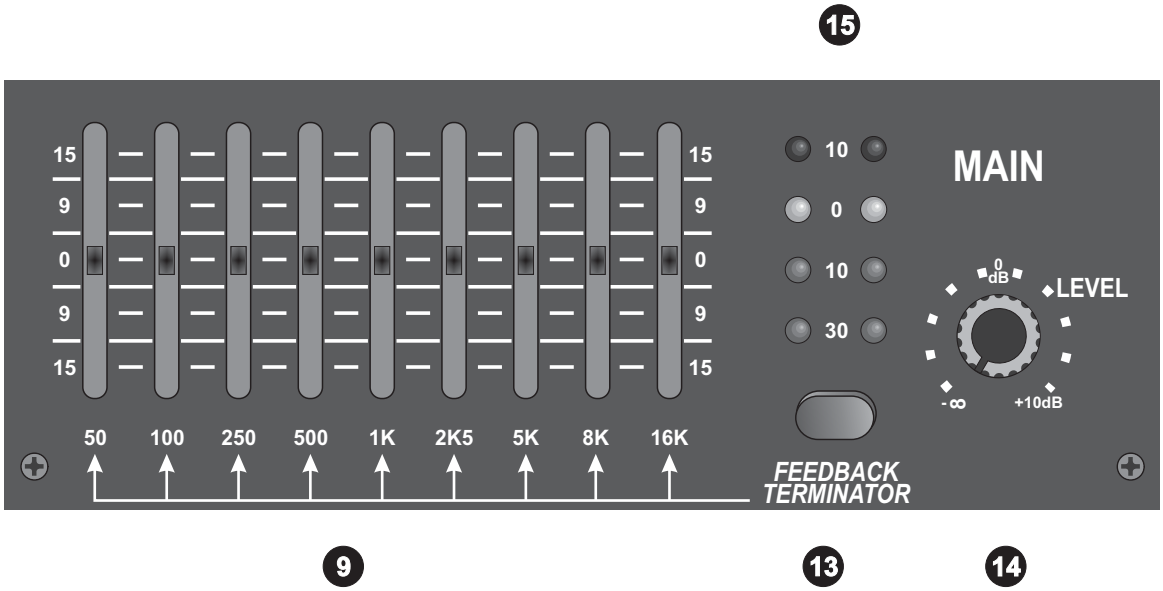
Pressing this button the automatic feedback detection function will be activated in monitor signal path. When a frequency band fader lights up, it means the level of this frequency band is too high, i.e. there is a little feedback occurring in this frequency band, which may result in unpleasant speaker "howling" or " whistling " . In this case, in order to eliminate feedback, you need to turn down the corresponding fader.

11 MONITOR LEVEL Control

This control is used to adjust the level of monitor output.

12 MONITOR LEVEL LED Display

This LED display is used to monitor the monitor output level.



9 13 14

13 FEEDBACK TERMINATOR Button (MAIN MIX)

Pressing this button the automatic feedback detection function will be activated in main mix signal path. When a frequency band fader lights up, it means the level of this frequency band is too high, i.e. there is a little feedback occurring in this frequency band, which may result in unpleasant speaker "howling" or "whistling" . In this case, in order to eliminate feedback, you need to turn down the corresponding fader.

14 MAIN MIX LEVEL Control

This control is used to adjust the overall volume of main mix output.

15 MAIN MIX LEVEL LED Display

The stereo 4 segments LED display is used to monitor the main mix output level.

16

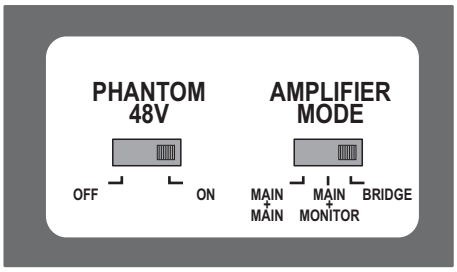
16 OPERATING LED Display

The LED indicates when the power is switched on in your PBM8.250 MK II/500 MK II.

17 PHANTOM 48V Switch

It is available only to the XLR MIC sockets. Never plug in a microphone when phantom power is already on. Before turning phantom power on, make sure that all faders are all the way down. In this way you will protect your stage monitors and main loudspeakers.

Pushing the switch to right will apply +48V phantom power only to the 8 XLR microphone inputs.

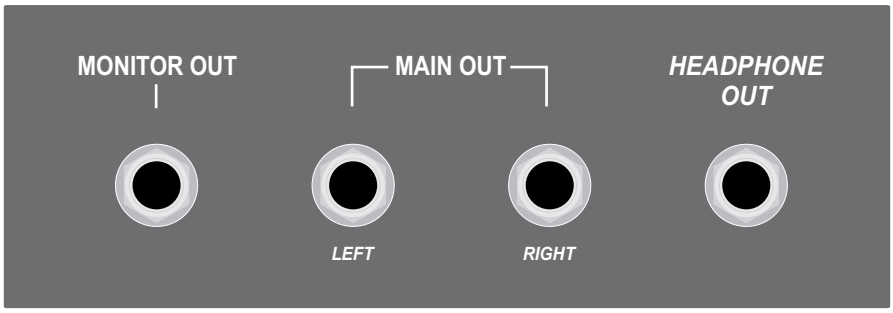


17 18

18 AMPLIFIER MODE Switch

This switch provides three modes: MAIN/MAIN; MAIN/MONITOR; BRIDGE. Select any one of these modes to specify the signals to be routed to the corresponding jacks according to the speaker connection at speaker jacks on the rear panel.
The details refer to later content.

4.3 MASTER SECTION INPUT and OUTPUT Jacks



19 20 21

19 MONITOR OUT Jack

Use the balanced MONITOR jack to connect the input of external monitor amplifier or active monitor speaker.

20 MAIN OUT Jacks

The both jacks are used to output the main mix signal to an external amplifier or active speaker.

21 HEADPHONE OUT Jack

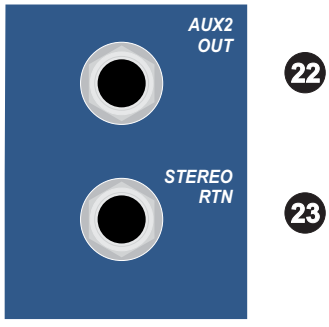
This is a stereo phone type output jack, it is used to send out the monitor signal to a pair of headphones.

22 AUX2 OUT Jack

The phone jack is used to output the line level signal of AUX2 bus. Generally, it is available to connecting effects unit.

23 STEREO RTN. Jack

Use the stereo phone jack to return the sound of an effect unit to the main mix. You can also use it as the extra auxiliary inputs.



22 23

24 TAPE TO Select Switch

Pushing this switch to left will route the signal from TAPE IN to CH9~10 path, and the signal will be affected by channel level control and main level control, while to right will route the signal to main mix bus, the signal will be affected only by main level control.

25 2-TRACK IN

Your PBM8.250 MK II/500 MK II features dual RCA jacks for 2-track in (left and right). If you wish to listen to your mix from a tape recorder, DAT or cassette, please use these tape input jacks. Depending on the setting of TAPE TO select switch, you can assign the signal coming from the tape recorder (DAT or cassette) to CH9~10 Path or main mix bus.

26 2-TRACK OUT

Your PBM8.250 MK II/500 MK II features dual RCA jacks for 2-track out (left and right). Via these jacks, you can route the main mix signal into a tape recorder or DAT for recording.

4.4 DSP Section

Your PBM8.250 MK II/500 MK II features the special 256 position multi-effect, further details please refer to following content.

27 PRESETS Control

Adjust this knob to select the right effect you wish to perform. There are total 16 options for you: several kinds of reverb, mono and stereo delay, modulation effects, and versatile two-effect combination.

28 VARIATIONS Control

Since you have selected the preferable effect, the next step, please go with the fine consideration, there are also total 16 variations for each preset, and each variation has been designed modifying several parameters.

29 DSP MUTE Switch

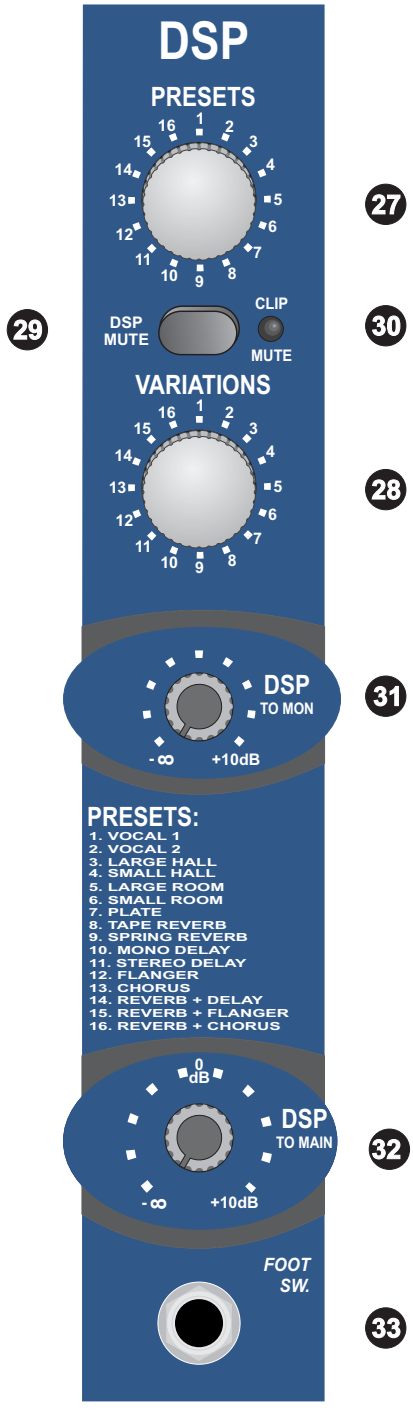
This switch is used to activate/deactivate the effect facility. Sometimes, you can also use the following FOOT SW jack for convenient operation

30 CLIP/MUTE LED

This LED lights up when the input signal is too strong. In case of the digital effect module being muted, this LED also lights up.

31 DSP TO MON Control

This control is used to control the volume of effect signal sent to monitor mix, which can be varied from -∞ to +10dB.



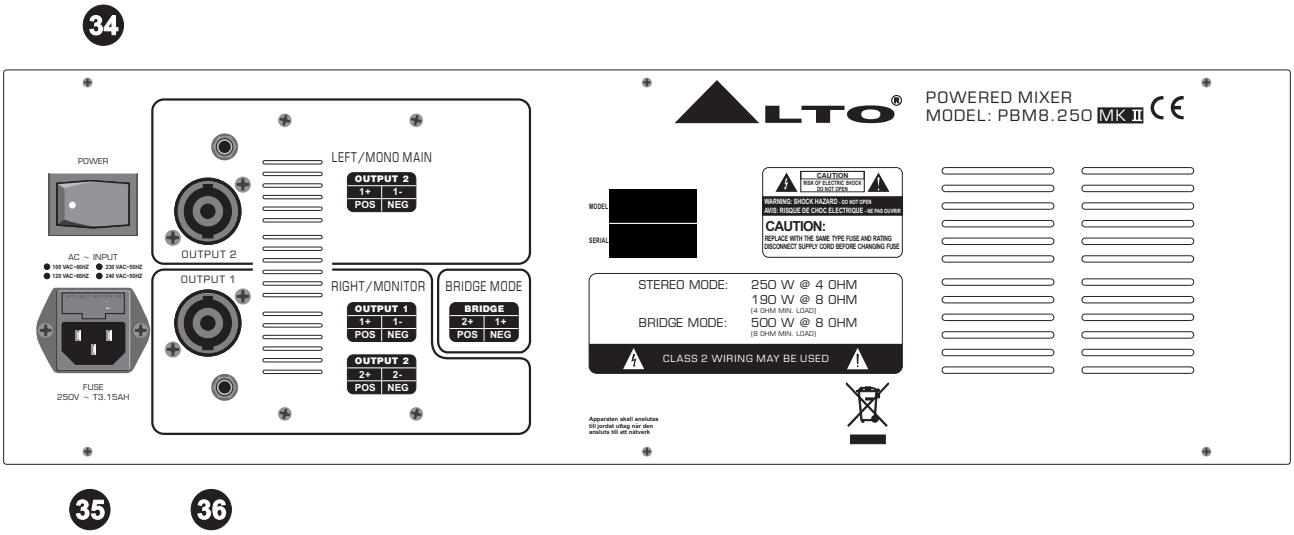
32 DSP TO MAIN Control

This control is used to control the volume of effect signal sent to main mix bus, which can be varied from -∞ to +10dB.

33 FOOT SW. Jack

Here, you can connect an external footswitch to turn on/off the onboard effect module. It is 1/4" phone jack.

4.5 Rear Panel



34 POWER ON/OFF Switch

This switch is used to turn the main power ON and OFF.

35 AC Inlet with FUSE Holder

Use it to connect your PBM8.250 MK II/500 MK II to the main AC with the supplied AC cord.
Please check the voltage available in your country and how the voltage for your PBM8.250 MK II/500 MK II is configured be-fore attempting to connect your PBM8.250 MK II/500 MK II to the main AC.

36 SPEAKERS Jacks

These jacks are used to connect speakers. They are configured with 4-way speakon connectors and 1/4" phone jacks. You can determine the signal that is output to these jacks according to the setting of AMPLIFIER MODE select switch.

Note: In order to avoid damaging your built-in amplifier, please pay more attention to the impedance of speaker. Lower load impedances are not permitted.

5. PRESET LIST

01. VOCAL1

No	Pre-delay	Rev Time	Room Size	Rev. Type	Hi Damp
1	84	1.00	39	Hall	-12
2	30	1.00	8	Tape	-12
3	0	4.50	10	Spring	-12
4	55	3.60	11	Plate	-12
5	10	1.20	9	Spring	-12
6	79	3.60	8	Hall	-12
7	45	0.8	41	Plate	-12
8	45	1.50	41	Plate	-12
9	25	2.40	9	Spring	-12
10	0	0.90	41	Tape	-12
11	45	1.50	10	Plate	-12
12	114	1.00	45	Hall	-12
13	40	1.00	9	Spring	-12
14	50	2.10	10	Tape	-12
15	45	4.50	11	Plate	-12
16	55	1.70		Plate	-12

02. VOCAL2

No	Pre-delay	Rev Time	Room Size	Rev. Type	Hi Damp
1	114	1.00	10	Spring	-12
2	45	0.80	41	Plate	-12
3	79	3.60	8	Hall	-12
4	10	1.20	9	Spring	-12
5	55	3.60	11	Plate	-12
6	0	4.50	10	Spring	-12
7	30	1.00	8	Tape	-12
8	84	1.00	39	Hall	-12
9	55	1.70	11	Plate	-12
10	45	4.50	41	Plate	-12
11	50	2.10	9	Tape	-12
12	40	1.00	45	Spring	-12
13	114	1.00	10	Hall	-12
14	45	1.50	41	Plate	-12
15	0	0.90	41	Tape	-12
16	25	2.40	9	Spring	-12

03. LARGE HALL

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	55	5.40	45	-0.96	79
2	55	5.40	45	-12.00	79
3	40	5.40	35	-0.96	78
4	40	5.40	35	-12.00	78
5	50	4.50	43	-0.96	82
6	50	4.50	43	-12.00	82
7	27	4.50	33	-0.96	82
8	27	4.50	33	-12.00	82

9	50	4.00	42	-0.96	82
10	50	4.00	42	-12.00	82
11	27	4.00	32	-0.96	82
12	27	4.00	32	-12.00	82
13	45	3.60	41	-0.96	88
14	45	3.60	41	-12.00	88
15	23	3.60	30	-0.96	88
16	23	3.60	30	-12.00	88

04. SMALL HALL

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	45	2.90	39	-0.96	92
2	45	2.90	39	-12.00	92
3	23	2.90	28	-0.96	92
4	23	2.90	28	-12.00	92
5	40	2.10	38	-0.96	100
6	40	2.10	38	-12.00	100
7	20	2.10	27	-0.96	100
8	20	2.10	27	-12.00	100
9	40	1.50	37	-0.96	100
10	40	1.50	37	-12.00	100
11	20	1.50	26	-0.96	100
12	20	1.50	26	-12.00	100
13	40	1.00	36	-0.96	100
14	40	1.00	36	-12.00	100
15	20	1.00	25	-0.96	100
16	20	1.00	25	-12.00	100

05. LARGE ROOM

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	55	4.50	20	-0.96	82
2	55	4.50	20	-12.00	82
3	40	4.50	11	-0.96	82
4	40	4.50	11	-12.00	82
5	50	4.00	19	-0.96	82
6	50	4.00	19	-12.00	82
7	27	4.00	11	-0.96	82
8	27	4.00	11	-12.00	82
9	50	3.60	18	-0.96	88
10	50	3.60	18	-12.00	88
11	27	3.60	10	-0.96	88
12	27	3.60	10	-12.00	88
13	45	2.90	18	-0.96	88
14	45	2.90	18	-12.00	88
15	23	2.90	10	-0.96	88
16	23	2.90	10	-12.00	88

06. SMALL ROOM

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	45	2.10	17	-0.96	92
2	45	2.10	17	-12.00	92
3	23	2.10	9	-0.96	92
4	23	2.10	9	-12.00	92
5	40	1.50	17	-0.96	100
6	40	1.50	17	-12.00	100
7	20	1.50	9	-0.96	100
8	20	1.50	9	-12.00	100
9	40	1.00	16	-0.96	100
10	40	1.00	16	-12.00	100
11	20	1.00	8	-0.96	100
12	20	1.00	8	-12.00	100
13	40	0.70	16	-0.96	100
14	40	0.70	16	-12.00	100
15	20	0.70	8	-0.96	100
16	20	0.70	8	-12.00	100

07. PLATE

No	Pre-delay	Rev Time	Room Size	Hi Damp
1	10	6.10	10	-2.08
2	10	5.40	10	-2.08
3	10	4.50	10	-2.08
4	10	4.00	10	-2.08
5	10	3.60	10	-2.08
6	10	2.90	10	-2.08
7	10	2.40	10	-2.08
8	10	2.10	10	-2.08
9	10	1.70	10	-2.08
10	10	1.50	10	-2.08
11	10	1.30	10	-2.08
12	10	1.20	10	-2.08
13	10	1.00	10	-2.08
14	10	0.80	10	-2.08
15	10	0.70	10	-2.08
16	10	0.60	10	-2.08

08. TAPE REVERB

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	84	5.4	38	-0.96	79
2	84	5.4	38	-12.00	79
3	84	4.50	35	-0.96	79
4	84	4.50	35	-12.00	79
5	84	4	31	-0.96	84
6	84	4	31	-12.00	84
7	84	3.60	28	-0.96	84
8	84	3.60	28	-12.00	84

9	0	3.60	23	-0.96	92
10	0	3.60	23	-12.00	92
11	0	2.90	23	-0.96	92
12	0	2.90	23	-12.00	92
13	0	2.10	21	-0.96	100
14	0	2.10	21	-12.00	100
15	0	1.30	21	-0.96	100
16	0	1.30	21	-12.00	100

09. SPRING REVERB

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	35	5.4	35	-0.96	79
2	35	5.4	35	-12.00	79
3	30	4.50	33	-0.96	79
4	30	4.50	33	-12.00	79
5	30	4	30	-0.96	87
6	30	4	30	-12.00	87
7	30	3.60	28	-0.96	87
8	84	3.60	28	-12.00	87
9	0	2.90	22	-0.96	92
10	0	2.90	22	-12.00	92
11	0	2.40	22	-0.96	100
12	0	2.40	22	-12.00	100
13	0	1.70	22	-0.96	100
14	0	1.70	22	-12.00	100
15	0	1.30	22	-0.96	100
16	0	1.30	22	-12.00	100

10. MONO DELAY

No	Delay	F.B.
1	650	60
2	625	60
3	600	60
4	577	60
5	555	60
6	535	60
7	517	60
8	500	60
9	484	60
10	461	60
11	448	60
12	434	60
13	350	60
14	250	65
15	100	0
16	60	0

11. STEREO DELAY

No	Delay	Right Delay	Left F.B.	Right F.B.
1	400	200	51	72
2	375	187	51	72
3	352	176	40	72
4	326	163	40	72
5	312	156	40	72
6	300	150	40	72
7	288	144	40	66
8	277	138	40	66
9	267	133	30	66
10	258	129	38	73
11	250	125	37	73
12	241	120	36	73
13	238	119	36	73
14	230	115	37	74
15	222	111	38	73
16	214	107	37	73

12. FLANGER

No	Mod. Freq	Pitch. Depth	Left F.B.	Right F.B.
1	2.79	30	38	42
2	2.52	40	42	38
3	2.33	40	38	42
4	2.25	40	38	42
5	2.10	40	42	38
6	1.99	40	38	42
7	1.75	40	42	38
8	1.61	50	38	42
9	1.34	50	42	38
10	1.22	70	58	62
11	1.00	70	62	58
12	0.80	70	62	58
13	0.65	70	58	62
14	0.54	70	68	72
15	0.42	70	68	72
16	0.16	70	68	72

13. CHORUS

No	Mod. Freq.	Pitch. Depth	IHFR
1	5.00	15	-3(0)
2	4.74	15	-4(0)
3	4.39	15	-4(0)
4	4.12	15	-4(0)
5	3.90	30	-4(0)
6	3.67	30	-4(0)
7	3.32	30	-4(0)
8	3.02	30	-4(0)
9	2.87	30	-4(0)
10	2.63	40	-4(0)

11	2.33	40	-3(0)
12	1.99	40	-3(0)
13	1.70	40	-3(0)
14	1.35	40	-2(0)
15	1.00	70	-2(0)
16	0.50	70	-2(0)

14. REVERB+DELAY

No	Rev Time	Room Size	Left Delay	Right Delay	Left F.B.	Right F.B.	Rev level
1	2.90	39	375	187	48	82	80%
2	2.90	39	326	163	28	67	80%
3	2.90	39	300	150	28	67	80%
4	2.90	39	277	138	28	67	80%
5	2.40	39	258	129	28	60	80%
6	2.40	39	241	120	28	49	80%
7	2.40	39	230	115	28	49	80%
8	2.40	39	211	107	28	49	80%
9	2.10	26	375	187	48	82	90%
10	2.10	26	326	163	28	67	90%
11	1.50	26	300	150	28	67	90%
12	1.50	26	277	138	28	67	90%
13	1.50	26	258	129	28	60	90%
14	1.50	26	241	120	28	49	90%
15	1.00	26	230	115	28	49	90%
16	1.00	26	211	107	28	49	90%

15. REVERB+FLANGER

No	Rev Time	Room Size	Mod. Freq.	Pitch. Depth	Left F.B.	Rev level
1	2.90	39	2.52	40	40	90%
2	2.90	39	2.25	40	40	90%
3	2.90	39	1.99	40	40	90%
4	2.90	39	1.61	50	40	90%
5	2.90	39	1.22	70	60	90%
6	2.90	39	0.80	70	60	90%
7	2.90	39	0.54	70	70	90%
8	2.90	39	0.16	70	70	90%
9	1.50	26	2.52	40	40	90%
10	1.50	26	2.25	40	40	90%
11	1.50	26	1.99	40	40	90%
12	1.50	26	1.61	50	40	90%
13	1.50	26	1.22	70	60	90%
14	1.50	26	0.80	70	60	90%
15	1.00	26	0.54	70	70	90%
16	1.00	26	0.16	70	70	90%

16. REVERB+CHORUS

No	Rev Time	Room Size	Mod. Freq.	Pitch. Depth	Left F.B.	Rev level
1	2.90	39	4.74	40	100	90%
2	2.90	39	4.12	40	100	90%
3	2.90	39	3.67	40	100	90%
4	2.90	39	3.02	40	100	90%
5	2.90	39	2.63	40	100	90%
6	2.90	39	1.99	40	100	90%
7	2.90	39	1.35	70	100	90%
8	2.90	39	0.50	70	100	90%
9	1.50	26	4.74	40	100	90%
10	1.50	26	4.12	40	100	90%
11	1.50	26	3.67	40	100	90%
12	1.50	26	3.02	40	100	90%
13	1.50	26	2.63	40	100	90%
14	1.50	26	1.99	40	100	90%
15	1.00	26	1.35	70	100	90%
16	1.00	26	0.50	70	100	90%

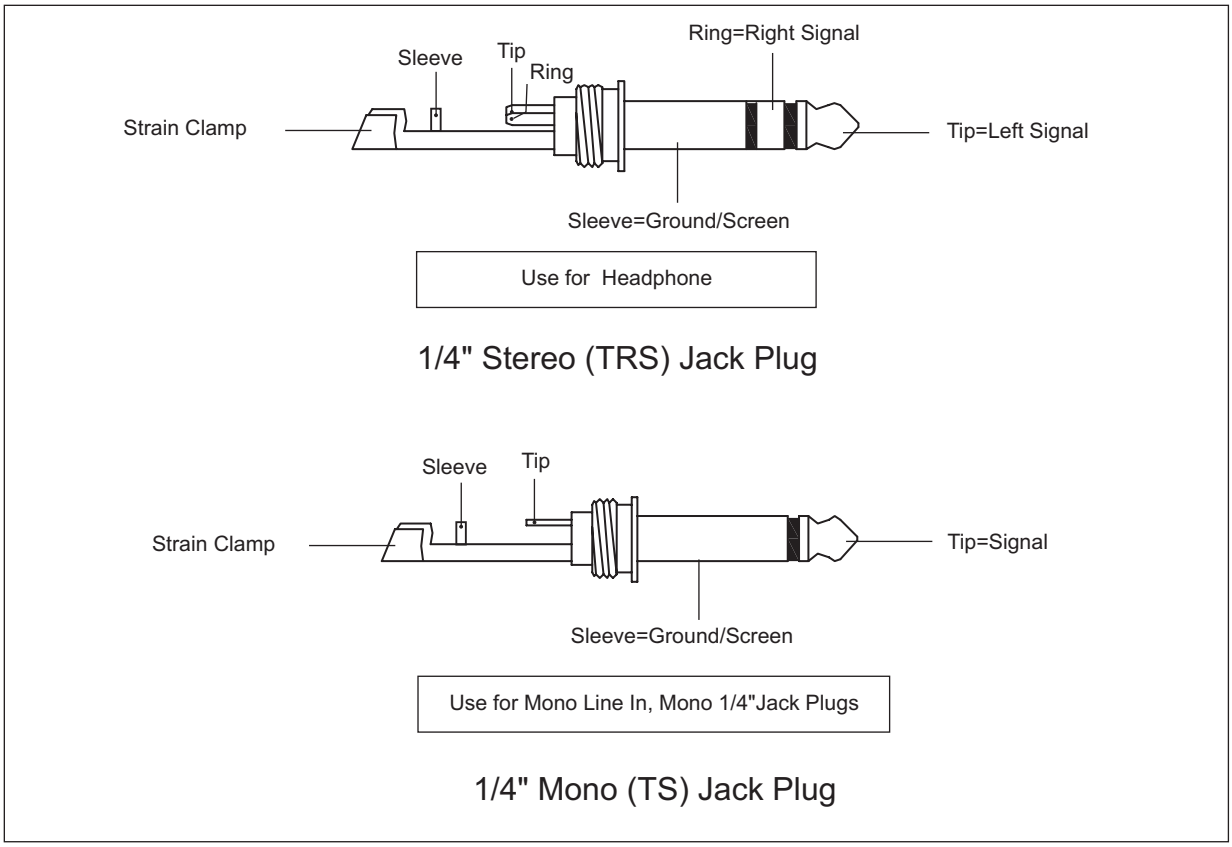
6. INSTALLATION AND CONNECTION

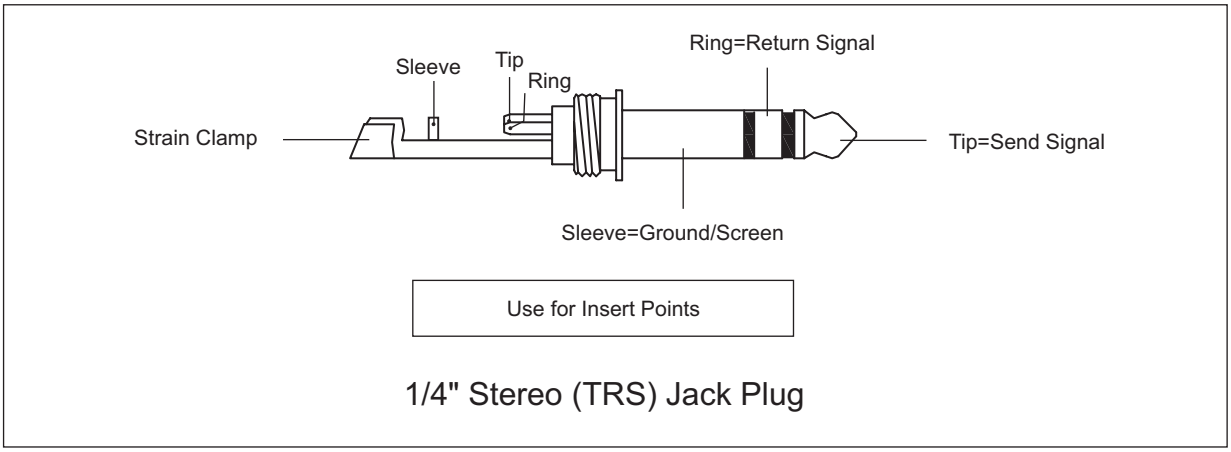
Ok, you have got to this point and you are now in the position to successfully operate your PBM8.250 MK II/500 MK II. However, we advise you to read carefully the following section to be the real master of your own mix. Not paying attention enough to the input signal level, to the routing of the signal and the assignment of the signal will result in unwanted distortion, a corrupted signal or no sound at all. So you should follow this procedure for every single channel:

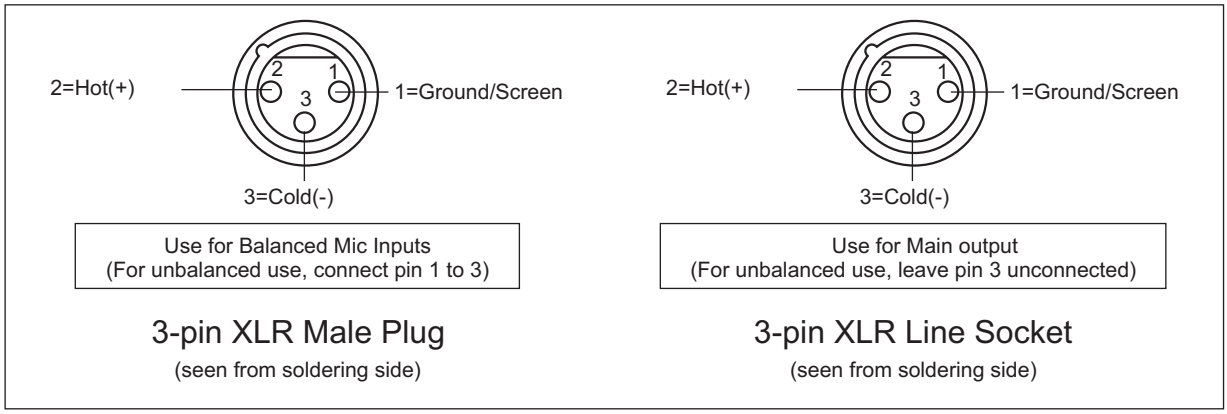
- Turn down all Input and output gain controls.
- Connect phantom powered microphones before switching on the +48Volt phantom power switch.
- Set the output level of your PBM8.250 MK II/500 MK II or the connected power amplifier at no more than 75%.
- Now, set the MONITOR level at no more than 50%. In this way you will be able to hear later what you are doing connecting a pair of headphones or a pair of powered studio monitor speakers.
- Position EQ controls on middle position.
- Position panoramic (PAN) control on center position.
- Increase the input gain properly for maintaining the good headroom and ideal dynamic range.
- Depending on the actual application, turn slowly the input and output level controls for obtaining the maximum gain before distortion.
- Now repeat the same sequence for all input channels. The main LED meter could move up into the red section. In this case you can adjust the overall output level through the MAIN MIX control.

6.1 Audio Connections

You can connect unbalanced equipment to balanced inputs and outputs. Simply follow these schematics.

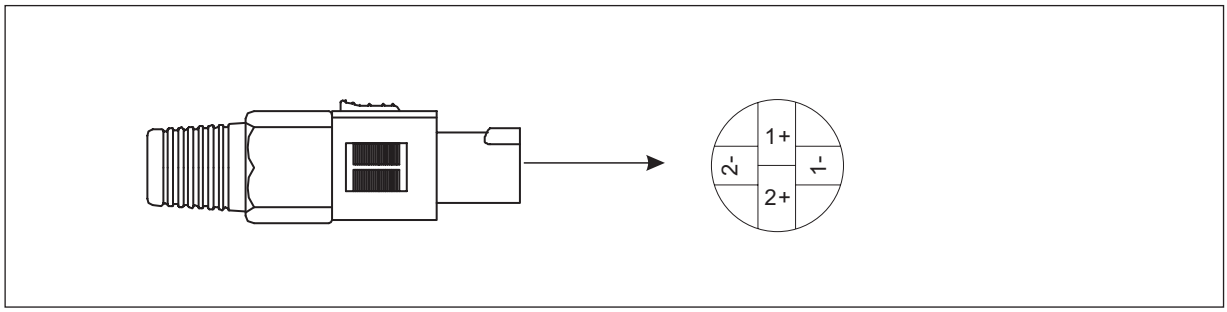






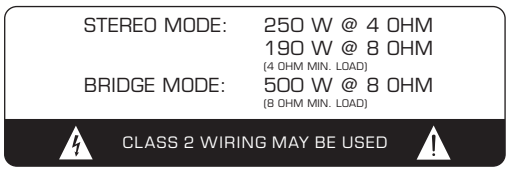
6.2 Main Speaker Connections

Please use only the power connectors to make connections with other signal source equipment for the passive speaker cabinets. The power connector has four terminals: 1+, 1-, 2+, 2-.

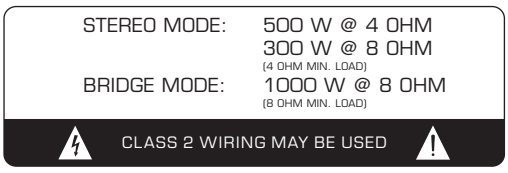


Speakon connector

Your PBM8.250 MK II/500 MK II features three modes for connecting the main speakers. The speaker impedance requirement varies depending on how you connect the speaker. In order to avoid damaging your built-in amplifier, please pay more attention to the impedance of speaker. Lower load impedances are not permitted. The further details, you can refer to the mark on rear panel.

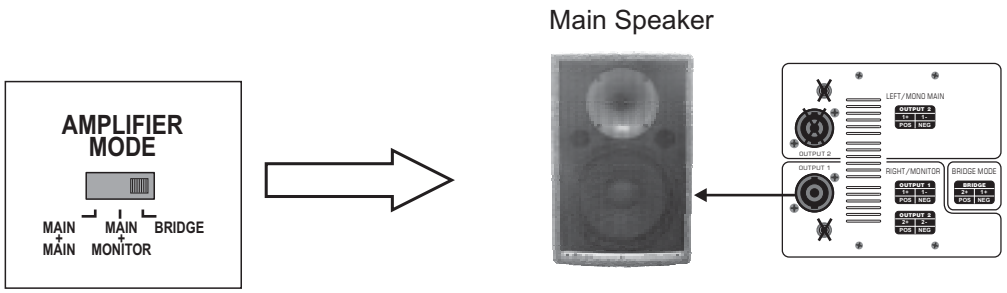


PBM8.250 MK II

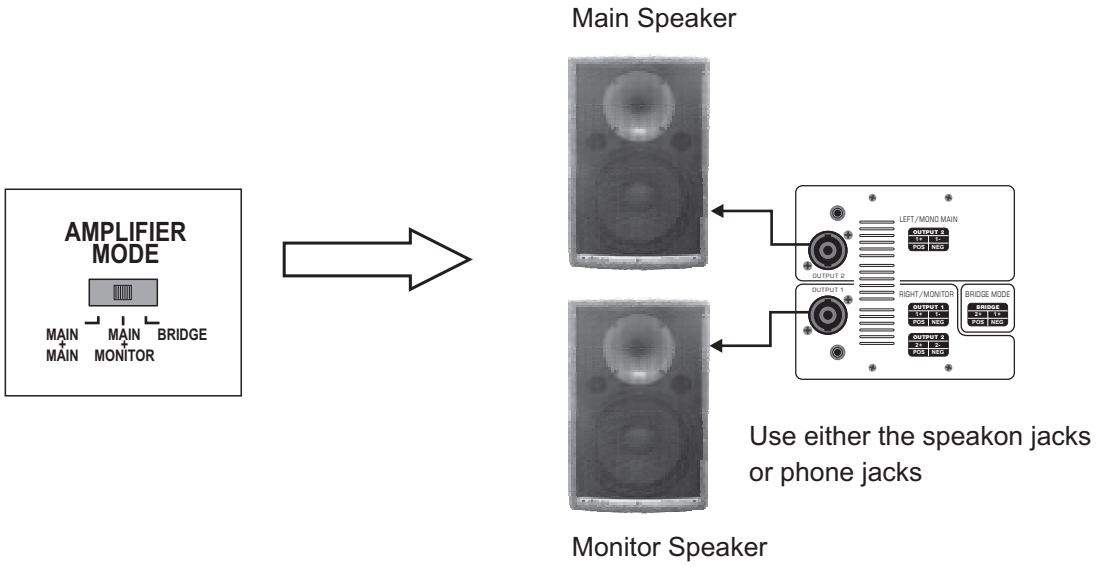


PBM8.500 MK II

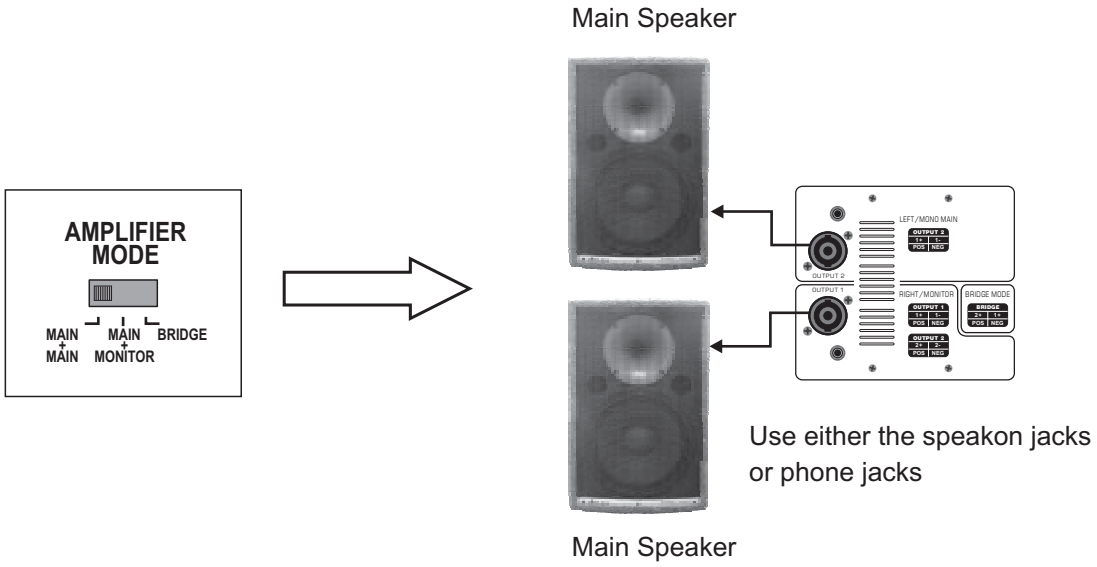
Here some illustrations will give you some helpful suggestions.



Bridge Mode



MAIN + MONITOR Mode



MAIN + MAIN Mode

6.3 Possible System Connection Mode for Live Sound Application

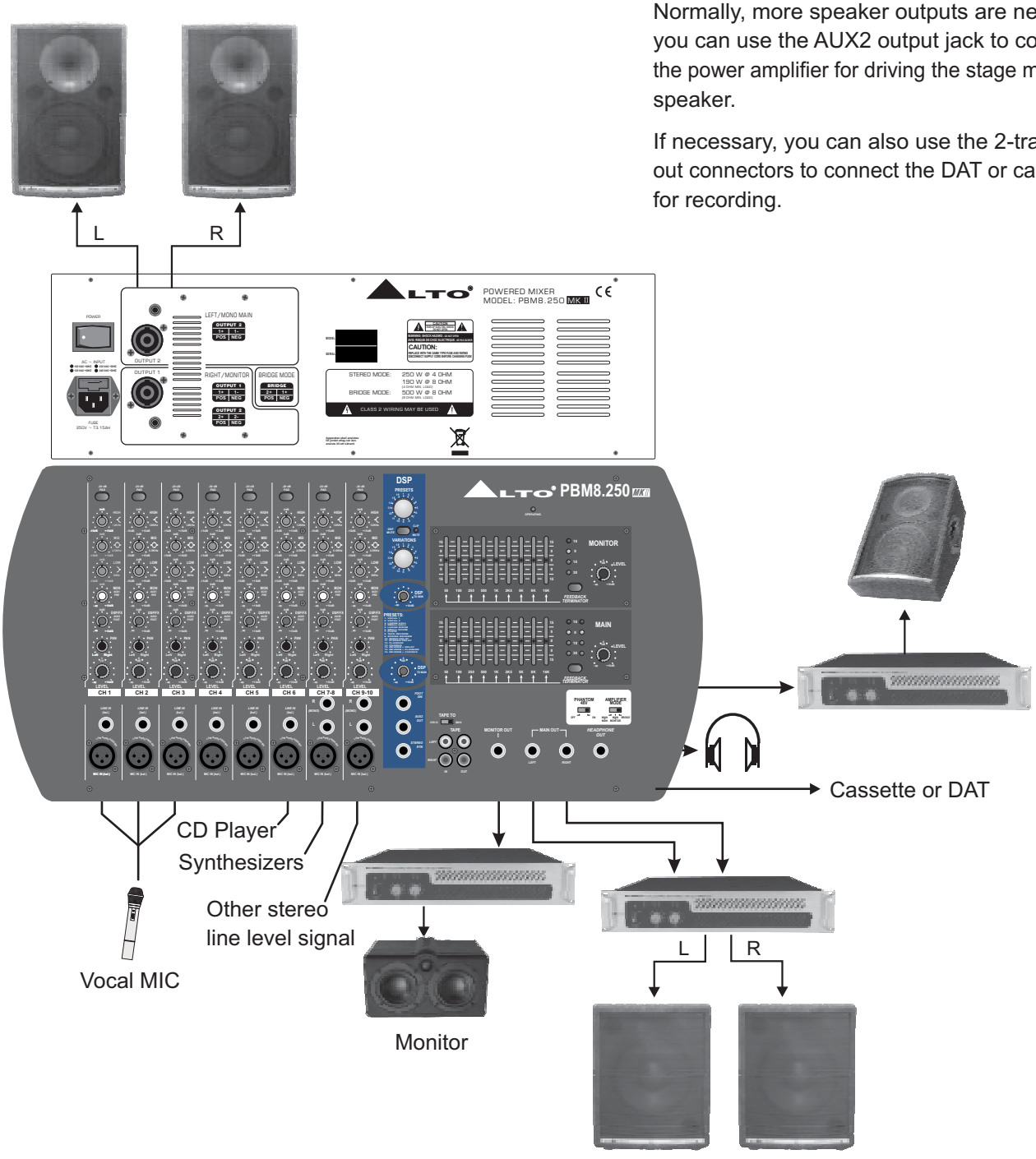
Read through the "QUICK START" chapter and previous setting procedures , you will know how to start your system quickly and adjust the channel setting under safety conditions. Here shows the PBM8.250 MK II/500 MK II in a live sound system. The following section explains the basic connection and operating.

For input section, connect three or more microphones to mono MIC channels (1~3); connect synthesizers or signal processor to either line input of stereo channel 7~8 or line input of mono channel; connect the CD player to line input of mono or stereo channel; other stereo line signal source can be connected to line input of channel 9~10.

For output section, you can connect either an external amplifier or active speaker to the monitor output jack. Through the main output jacks on front panel, you can connect an external power amplifier to driving the 2 sub-woofers or 2 active speakers. Besides, you can connect a pair of headphone to headphone output jack. There are powered mix output connectors on rear panel, through these, you can connect 2 passive main speakers.

Normally, more speaker outputs are needed, you can use the AUX2 output jack to connect the power amplifier for driving the stage monitor speaker.

If necessary, you can also use the 2-track in/ out connectors to connect the DAT or cassette for recording.



7. TECHNICAL SPECIFICATION

Mono input channels		
	Microphone input	electronically balanced, discrete input configuration
	Frequency response	10Hz to 55kHz, +/- 3dB
	Distortion (THD & N)	0.006% at +4dBu, 1kHz
	Gain	50dB (MIC)
	SNR (Signal to Noise Ratio)	>90dB
	Line input	electronically balanced
	Frequency response	10Hz to 55kHz, +/- 3dB
	Distortion (THD & N)	0.04% at +4dBu, 1kHz
	Gain	30dB
Stereo input channels		
	Line input	Unbalanced
	Frequency response	10Hz to 55kHz, +/- 3dB
	Distortion (THD & N)	0.006% at +4dBu, 1kHz
Impedances		
	Microphone input	1.4kOhm
	Channel Insert return	2.5kOhm
	All other inputs	10kOhm or greater
	Tape out	1kOhm
	All other output	120Ohm
Equalization		
	Hi shelving	+/ - 15dB @12kHz
	Mid bell	+/ - 15dB @2.5kHz
	Low shelving	+/ - 15dB @ 80Hz
DSP Section		
	A/D and D/A converters	24 bit
	DSP resolution	24 bit
	Type of effects	Hall, Room, Vocal & Plate REVERBS
		Mono & Stereo DELAY (max DELAY TIME 650ms)
		Chorus, Flanger & Reverb MODULATIONS
		REVERB+DELAY, REVERB+CHORUS,
		REVERB+FLANGER combinations
	Presets	256
	Controls	16-position PRESET Selector
		16-position VARIATION selector
		CLIP LED
		MUTE SWITCH with LED indicator
Main Mix Section		
	Noise (Bus noise)	Fader 0 dB, channels muted: - 85dBr (ref.:+4dBu)
		Fader 0dB, all input channels assigned and set to
		UNITY gain: - 71dBr (ref.:+4dBu)
	Max output	+27dBu balanced ,
		+22dBu unbalanced, 1/4" jacks
	AUX Sends max out	+22dBu

Power supply		
	Main voltage	100VAC ~ 60Hz 230VAC ~ 50Hz
		120VAC ~ 60Hz 240VAC ~ 50Hz
	Power Consumption	
		PBM8.250 MK II Stereo mode: 250W @ 4ohm
		190W @ 8ohm
		Bridge mode: 500W @ 8ohm
		PBM8.500 MK II Stereo mode: 500W @ 4ohm
		300W @ 8ohm
		Bridge mode: 1000W @ 8ohm
	Fuse	
		PBM8.250 MK II 100 ~ 120V : T6.3AL
		210 ~ 240V : T3.15AL
		PBM8.500 MK II 100 ~ 120V : T10AL
		210 ~ 240V : T6.3AL
Physical		
	Dimension (W×D×H)	550mm×220mm×310mm
		(8.66"×12.20"×21.65")
	Weight	
		PBM8.250 MK II (Net) : 14kg (30.86lb)
		(Gross) : 15kg (33.07lb)
		PBM8.500 MK II (Net) : 15kg (33.07lb)
		(Gross) : 16kg (35.27lb)

8. WARRANTY

1. WARRANTY REGISTRATION CARD

To obtain Warranty Service, the buyer should first fill out and return the enclosed Warranty Registration Card within 10 days of the Purchase Date.

All the information presented in this Warranty Registration Card gives the manufacturer a better understanding of the sales status, so as to purport a more effective and efficient after-sales warranty service.

Please fill out all the information carefully and genuinely, miswriting or absence of this card will void your warranty service.

2. RETURN NOTICE

2.1 In case of return for any warranty service, please make sure that the product is well packed in its original shipping carton, and it can protect your unit from any other extra damage.

2.2 Please provide a copy of your sales receipt or other proof of purchase with the returned machine, and give detail information about your return address and contact telephone number.

2.3 A brief description of the defect will be appreciated.

2.4 Please prepay all the costs involved in the return shipping, handling and insurance.

3. TERMS AND CONDITIONS

3.1 ▲LTO warrants that this product will be free from any defects in materials and/or workmanship for a period of 1 year from the purchase date if you have completed the Warranty Registration Card in time.

3.2 The warranty service is only available to the original consumer, who purchased this product directly from the retail dealer, and it can not be transferred.

3.3 During the warranty service, ▲LTO may repair or replace this product at its own option at no charge to you for parts or for labor in accordance with the right side of this limited warranty.

3.4 This warranty does not apply to the damages to this product that occurred as the following conditions:

- Instead of operating in accordance with the user's manual thoroughly, any abuse or misuse of this product.
- Normal tear and wear.
- The product has been altered or modified in any way.
- Damage which may have been caused either directly or indirectly by another product / force / etc.
- Abnormal service or repairing by anyone other than the qualified personnel or technician.

And in such cases, all the expenses will be charged to the buyer.

3.5 In no event shall ▲LTO be liable for any incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.

3.6 This warranty gives you the specific rights, and these rights are compatible with the state laws, you may also have other statutory rights that may vary from state to state.

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